

## **ABSTRACT**

An improved hibernation method and system, including the use of a modified DMA (Direct Memory Access) mode of transferring data to and from the disk. The use of DMA increases data transfer speed, while freeing the system processor to perform other tasks, including compressing / decompressing the data transferred to and from the disk. An improved decoder is also provided that reduces the number of bounds checks needed on average for typical compressed data by first guaranteeing that there is sufficient room to decode literals and small substrings, whereby bounds checking is not needed. A combination hibernation mode and a suspend mode is also provided that essentially maintains power to the RAM while transparently backing the RAM with the hibernation file, such that if power to the RAM is interrupted, the RAM contents are automatically restored from the hibernation file when power is restored.